CLAIMS

1. A rubber composition comprising (i) an incompatible polymer blend comprising at least two diene rubbers selected from the group consisting of rubbers containing at least one conjugated diene monomer and, optionally, at least one aromatic vinyl monomer and forming two imcompatible polymer phases (A) and (B) and (ii) 0.1 to 20 parts by weight, based upon 100 parts by weight of the total polymer component including the block copolymer, of a block copolymer having at least two mutually incompatible blocks (a) and (b) in which the block (a) is compatible with the polymer phase (A) and incompatible with the polymer phase (B) and the block (b) is compatible with the polymer phase (B) and incompatible with the polymer phase (A), and comprising at least one conjugated diene monomer and, optionally, at least one aromatic vinyl monomer, wherein the molecular weights of the polymers forming the polymer phases (A) and (B) satisfy the following equations (I) and (II):

$$S_A = Mw_{30}(A)/Mw(a) \leq 1.2 \quad \text{(I)}$$

$$S_B = Mw_{30}(B)/Mw(b) \leq 1.2 \quad \text{(II)}$$

wherein $Mw_{30}(A)$: molecular weight of the low molecular weight portion of the polymer forming the polymer phase (A),

$Mw_{30}(B)$: molecular weight of the low molecular weight portion of the polymer forming the polymer phase (B),

Mw(a): weight average molecular weight of block (a) of block copolymer, and

Mw(b): weight average molecular weight of block (b) of block copolymer.

2. A rubber composition as claimed in claim 1, wherein 5 to 200 parts by weight, based upon 100 parts by weight of the block copolymer, of polymer (α) compatible with the block (a) and the polymer phase (A) and/or polymer (β) compatible with the block (b) and polymer

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phase (B) are further blended and the weight average molecular weights of the polymers (α) and (β) satisfy the following equations (III) and (IV):

$$S_\alpha = Mw(\alpha)/Mw(a) \leq 1.2 \quad \text{(III)}$$

$$S_\beta = Mw(\beta)/Mw(b) \leq 1.2 \quad \text{(IV)}$$

wherein Mw(α): weight average molecular weight of polymer (α),

Mw(β): weight average molecular weight of polymer (β),

Mw(a): weight average molecular weight of block (a) of block copolymer, and

Mw(b): weight average molecular weight of block (b) of block copolymer.

3. A rubber composition as claimed in claim 1, wherein said diene rubbers are NR, IR, BR, SBR, SIR and SIBR.

4. A rubber composition as claimed in claim 3, wherein a weight ratio of polymer phase (A)/polymer phase (B) is 90/10 to 10/90.

5. A rubber composition as claimed in claim 1, wherein said block copolymer contains at least two blocks selected from the group consisting of BR block, SBR block, IR block, SIR block, BIR block and SBIR block.

6. A rubber composition as claimed in claim 5, wherein a weight ratio of block (a)/block (b) is 80/20 to 20/80.

7. A rubber composition as claimed in claim 2, wherein said polymers (α) and (β) are selected from IR, BR, SBR and SIBR.

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8. A rubber composition comprising (i) an incompatible polymer blend comprising at least two diene-based rubbers selected from the group consisting of rubbers containing at least one conjugated diene monomer and, optionally, at least one aromatic vinyl monomer and forming two polymer phases (A) and (B) and (ii) 0.1 to 20

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parts by weight, based upon 100 parts by weight of the total polymer component including the block copolymer, of block copolymer having at least two mutually incompatible blocks (a) and (b), in which the block (a) is compatible with the polymer phase (A) and incompatible with the polymer phase (B) and the block (b) is compatible with the polymer phase (B) and incompatible with the polymer phase (A), and comprising at least one conjugated diene monomer and, optionally, at least one aromatic vinyl monomer and (iii) 5 to 200 parts by weight, based upon 100 parts by weight of the block copolymer, of at least one polymer selected from the group consisting of a polymer (α) compatible with the block (a) and the polymer phase (A) and a polymer (β) compatible with the block (b) and polymer phase (B), wherein the weight average molecular weights of the polymers (α) and (β) satisfy the following equations (III) and (IV):

$$S_\alpha = Mw(\alpha)/Mw(a) \leq 1.2 \qquad \text{(III)}$$

$$S_\beta = Mw(\beta)/Mw(b) \leq 1.2 \qquad \text{(IV)}$$

wherein Mw(α): weight average molecular weight of polymer (α),

Mw(β): weight average molecular weight of polymer (β),

Mw(a): weight average molecular weight of block (a) of block copolymer, and

Mw(b): weight average molecular weight of block (b) of block copolymer.

9. A rubber composition as claimed in claim 8, wherein said diene rubbers are NR, IR, BR, SBR, SIR and SIBR.

10. A rubber composition as claimed in claim 9, wherein a weight ratio of polymer phase (A)/polymer phase (B) is 90/10 to 10/90.

11. A rubber composition as claimed in claim 8,

wherein said block copolymer contains at least two blocks selected from the group consisting of BR block, SBR block, IR block, SIR block, BIR block and SBIR block.

12. A rubber composition as claimed in claim 11, wherein a weight ratio of block (a)/block (b) is 80/20 to 20/80.

13. A rubber composition as claimed in claim 8, wherein said polymers (α) and (β) are selected from IR, BR, SBR and SIBR.

14. A rubber composition comprising 100 parts by weight of a block copolymer having at least two mutually incompatible blocks (a) and (b) and composed of at least one conjugated diene monomer and, optionally, at least one aromatic vinyl monomer and 5 to 200 parts by weight of at least one polymer selected from the group consisting of a polymer (α) compatible with the block (a) and a polymer (β) compatible with the block (b), wherein the weight average molecular weights of the polymers (α) and (β) satisfy the following equations (III) and (IV):

$$S_\alpha = Mw(\alpha)/Mw(a) \leq 1.2 \qquad \text{(III)}$$

$$S_\beta = Mw(\beta)/Mw(b) \leq 1.2 \qquad \text{(IV)}$$

wherein $Mw(\alpha)$: weight average molecular weight of polymer (α),

$Mw(\beta)$: weight average molecular weight of polymer (β),

Mw(a): weight average molecular weight of block (a) of block copolymer, and

Mw(b): weight average molecular weight of block (b) of block copolymer.

15. A rubber composition as claimed in claim 14, wherein said block copolymer contains at least two blocks selected from the group consisting of BR block, SBR block, IR block, SIR block, BIR block and SBIR block.

16. A rubber composition as claimed in claim 15, wherein a weight ratio of block (a)/block (b) is 80/20 to 20/80.

17. A rubber composition as claimed in claim 14, wherein said polymers (α) and (β) are selected from IR, BR, SBR and SIBR.